

Workshop Announcement and Invitation to Participate

Integrated Modeling for Integrated Environmental Decision Making

Please mark your calendars for this very exciting meeting!

The EPA Council on Regulatory Environmental Modeling (CREM) and the National Exposure Research Lab, Ecosystems Research Division (ORD/NERL/ERD) are hosting a workshop to initiate a broad-based dialogue on the use of integrated approaches to inform environmental decision-making at EPA.

Agency Key Note Speakers:

Mr. Stephen Johnson, Administrator (Invited)
Dr. George Gray, Assistant Administrator, Office of Research & Development (Invited)

Workshop Goals

The goals of the workshop are to:

- Develop consensus on what is meant by integrated modeling/decision-making
- To better understand the drivers and applicability of integrated modeling/decision-making, (i.e., what is driving Agency to integration, what are the responses).
- Provide an opportunity for EPA Offices to share experiences and perspectives on lessons learned and emerging modeling priorities.
- Develop and prioritize a consolidated list of issues to address within the Agency on integrated modeling in the context of regulatory decision-making.
- Create a vision and discuss development of a strategic plan for achieving integrated modeling/decision-making for EPA.

Who Should Attend?

As integrated modeling and decision-making span multiple dimensions, Core, Regional, and Program Office staff involved in development (i.e., scientists/technologists), application (program science leads), and interpretation of model outcomes (e.g., program management leads, decision-maker support staff) are encouraged to attend. To build a workable vision for the future of integrated modeling for decision making, broad representation from all these sectors is needed.



January 30- February 1, 2007
EPA Auditorium, RTP, North Carolina
<http://www.epa.gov/crem>



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Background:

Given the complex and multi-dimensional nature of environmental problems, the EPA's original vision was to consider the environment as a "single, interrelated system". To achieve its mission of protecting human health and safeguarding the natural environment, the EPA often employs models to study environmental systems and processes and to inform regulatory decision making. This modeling has traditionally focused on considering a single pollutant in a single environmental medium. While it is clear that in the 36 years since its inception, EPA has made remarkable environmental accomplishments, there is a growing consensus, both within and outside the Agency, that a more integrated approach to environmental management is needed to ensure that significant environmental problems are adequately identified, assessed and addressed. As EPA continues to focus on achieving environmental outcomes and program efficiencies, developing a more holistic understanding of the environment and the mechanisms governing multimedia fate and transport of pollutants, as well as the multiple exposure pathways and the consequent responses of humans and ecosystems, is crucial to the Agency's ability to assess and protect our environment in the future.

Integrated Modeling:

While integrated modeling is sometimes associated with the concept of multimedia modeling, the scope is, in fact, much broader. It includes "integrated modeling" of multiple pollutants and sources (stationary and mobile sources or point sources and non-point sources) within a single medium (e.g. CMAQ and BASINS), modeling multiple pollutants across multiple environmental media, pathways, and/or receptors, (e.g. 3MRA, Lifeline) and multiple ecosystem endpoints (e.g. Aquatox), integrating models across the source to dose continuum (e.g. MENTOR), modeling across different spatial and temporal scales and integrating bio-geophysical models with economic and social models (e.g. WEAP model). There are a number of different approaches to developing these "integrated models", including developing modeling frameworks to allow re-use and static or dynamic linking between existing models and model components, or building an "integrated model" from the outset. While an integrated approach puts environmental modeling on a path of continuous improvement to achieve, conceptually at least, a greater level of fidelity with reality, there is also a need to avoid overly-complex models that are impractical to evaluate and apply. This is especially pertinent given the irreducible nature of some of the uncertainties associated with environmental models and the need to balance model complexity with simplicity.

Integrated Decision-Making:

Integrated environmental decision-making, and the way in which models are used to support decision-making, extends the concepts in which science and technology form a foundation to both inform upon and communicate the credibility of science as applied to a given problem. For example, we recognize today that stakeholders and decision-makers should be integrated into the modeling process, both prior to model development and/or model selection, up through final decision-making. Regardless of how deeply or broadly science (as models and data) are integrated to inform specific decisions, an inevitable trend is that decision making is quickly being integrated with modeling science through technology (e.g., modeling frameworks, data-acquisition/processing, web-based interfaces, visualization, uncertainty and sensitivity analyses, etc). This has been born of the necessity to more clearly and efficiently demonstrate the value of model-based information used to support decisions. There is clearly a need to link the use of integrated modeling approaches for assessment purposes to decision making needs, and the selection of management and policy options. Consequently, the use of integrated modeling in environmental regulation is another important aspect of this workshop. The development of the Clean Air Mercury Rule (CAMR) is an example of the integration of different types of models in rule making. However, we must remain mindful of the realities of the present system and make sure that what is recommended is achievable. The overarching question that will need to be addressed as part of the workshop is: "To what extent can we, or should we adopt an integrated modeling approach upon considering the large diversity of type and complexity that exists in EPA decision making?"



To register, please visit this website:
<http://www.epa.gov/crem>

